UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR		ATTORNEY DOCKET NO.
08/952,949	04/10/98	ITOH	M	70559-2/8241

HM92/0410

JOHN P DELUCA
WATSON COLE GRINDLE WATSON
1400 K STREET N W
SUITE 1000
WASHINGTON DC 20005-2477

EXAMINER	
ENAD,E	
ART UNIT	**PAPER NUMBER**
2834	

DATE MAILED: 04/10/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 08/952,996	Applicant(s) Leijon et al.
	Examiner Enad, Elvin	Group Art Unit 2834

X Responsive to communication(s) filed on *Feb 23, 2001*.

X This action is **FINAL**.

Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

X Claim(s) *1-29 and 31-44* is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

Claim(s) _____ is/are allowed.

X Claim(s) *1-29 and 31-44* is/are rejected.

Claim(s) _____ is/are objected to.

Claims _____ are subject to restriction or election requirement.

Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on _____ is/are objected to by the Examiner.

The proposed drawing correction, filed on _____ is approved disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All Some* None of the CERTIFIED copies of the priority documents have been

received.

received in Application No. (Series Code/Serial Number) _____.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

Notice of References Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

Information Disclosure Statement

1. Receipt of the IDS Form 1449 filed on February 23, 2001, is acknowledged. A copy of the signed Form 1449 will be provided when the application is allowed.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-9,11,15-29,31 and 32 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant Disclosed Prior Art Figure 3 in view of Shildneck (USP 3,014,139) and further in view of Elton et al. (USP 5,036,165).

Prior art figure 3 discloses the claimed invention except for having a winding comprising of an insulation system and at least two semiconducting layers, the layers having substantially the same coefficient of thermal expansion.

Shildneck teaches that it is known to use a cable winding in a dynamo-electric machine. Shildneck discloses an improved continuous winding for an electromagnetic device such as a large turbine-driven generator, the winding employing an improved form of flexible insulated conductor for the laminated armature core of the dynamo-electric machine. In addition, Elton et al. teach that it is known to have an electrical cable comprising an internal grading layer of semi-conducting

pyrolyzed glass fiber layer in electrical contact with the cable conductor. In another form of embodiment, Elton et al. teach an electrical cable provided with an exterior layer of internal grading layer of semi-conducting pyrolyzed glass fiber layer in contact with an exterior cable insulator with a predetermined reference potential.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the cable assembly of Shildneck having semiconducting layers as taught by Elton et al. to the device as disclosed in prior art figure 3 since such a modification according to Elton et al. would provide a conductor which prohibits the development of corona discharge.

4. In regard to forming the semiconducting layer with the same coefficient of thermal expansion as that of the insulation layer, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have formed these layers with similar coefficients since it was known in the art that the expansion rate of the two layers would be the same and this is desirable in order to prevent cracking of the insulation and wear between the two.

5. Claims 10 and 33-44 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant Disclose prior art Figure 3 in view of Shildneck (USP 3,014,139) and Elton et al. (USP 5,036,165) and further in view of Takaoka et al. (USP 5,094,703).

Prior art figure 3, Shildneck and Elton et al. disclose the claimed invention except for a teaching of having the strands of the electrical conductor comprised of insulated and uninsulated windings.

Takaoka et al., as seen in figures 7,8,10 and 11 teach having a stranded conductor for an electrical cable comprising a combination of uninsulated stranded conductor and an insulated stranded conductor.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the teaching of Takaoka et al. having insulated and uninsulated electrical conductor strands and to have modified the device of Elton et al. since such a modification would reduce the amount of insulation needed minimizing assembly and production costs.

6. Claim 12 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant Disclose prior art Figure 3 in view of Shildneck (USP 3,014,139) and Elton et al. (USP 5,036,165) and further in view of Breitenbach et al. (USP 4,785,138).

Prior art figure 3 and Elton et al. disclose the claimed invention except for a teaching of having metal screen and sheath in the cable.

Breitenbach et al. teach that it is known to utilize metal screen and sheath in the cable. It would have been obvious to one having ordinary skill in the art at the time the invention was made to used the arrangement of Breitenbach et al. to the device of as disclosed by Elton et al. since such a modification according to Breitenbach et al. in column 4, lines 59-69 would provide

mechanical protection and electrical shield for the cable.

7. Claims 13 and 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant Disclose prior art Figure 3 in view of Shildneck (USP 3,014,139) and Elton et al. (USP 5,036,165) and further in view Lauw (USP 4,982,147).

Prior art figure 3 and Elton et al. disclose the claimed invention except for a teaching of having or not having a step-up transformer in the system device.

Lauw in column 6, lines 50-52 teach that use of transformers to step-up or step down the voltage are contingent upon the requirements of the application. In this instant application, having a voltage higher than 30kV-36kV, it would have been an obvious matter of design choice to one having ordinary skill in the art to utilize a step-up transformer in order to increase and meet the required voltage in the application.

Response to Arguments

8. Applicant's arguments filed on February 12, 2001, have been fully considered but they are not persuasive.

Applicant provided various arguments as to why the combination of the referenced prior arts were not obvious, since the references fail to teach or suggest motivations for combining. Applicant asserts that Elton ('165) disclose only a transmission and distribution cable and that Elton et al. ('565), the parent application which was incorporated by reference, disclose generally the use of semi-conducting layer for insulated electrical conductors in three distinct embodiments.

Moreover, applicant argues that in Elton et al. ('565) the conductors of the dynamoelectric machine are referred to exclusively as "windings" or "bars", and when referring to an electrical cable for carrying high voltage, Elton et al. ('565) refer to the conductors as "cable" not a "winding" or "bar". Applicant concludes that when the disclosure is taken together, the conductor designated in Elton et al. ('165) relates to an electrical cable for transmission and distribution of electrical power and not for a winding for a dynamo electric machine. Applicant further argues that these are separate applications utilizing a common component and that Elton et al. (1'65 and '565) do not teach the cable and the winding to be interchangeable.

Examiner disagrees with applicant's argument and contends that Elton et al. ('165) provide a teaching or suggestion for using his cable arrangement having semi-conducting layers for dynamo-electric machines applications.

It is important to note that the thrust of the invention of Elton et al. ('165 and '565) is the use of a semi-conducting layer material with an insulated conductor. In addition, Elton et al. ('565) in column 8, lines 14-25, clearly suggest that while the embodiments or examples illustrate only electrically grounded insulation bodies in combination with the semi-conducting layer, any one having ordinary skill in the art will appreciate that "any body having a known electric potential may be coupled to the semi-conducting layer to eliminate the effects of ambient electrical fields or charges developed within or without the electrical conductor or encompassed components."

Elton et al. ('565) provided three distinct embodiments utilizing a semiconducting layer, namely, in windings of a dynamoelectric machine, electrical cables and electrical housing surrounding a digital electronic equipment. In all applications, Elton et al ('565) teach that when the semiconducting layer is in electrical contact with an electrical ground, the layer prohibits the development of a corona discharge and bleeds off any electric charge developed on the exterior surface of an insulated conductor, (see column 7 lines 64 through column 8, lines 1-25).

In the art of motors, and as recognized by Elton et al. ('165), the problem of corona discharge in dynamo electric machines is commonly known and ever present. Elton et al. ('165) describes this problem in the background of the invention (column 1, lines 15-35) that corona discharge develops whenever an electrical potential exists between the conductor and the region adjacent the exterior surface of the insulator. The stationary armature core are generally made of laminations which define circumferentially spaced radial slots opening into the bore. Disposed in the slots are heavily insulated electrical windings causing a high electrical potential to exists between the windings or armature bars and the members of the stator defining the slots which are at an electrical ground. Accordingly, when the semiconducting layer is in electrical contact with the electrical ground, the layer prohibits the development of corona discharge and bleeds off any electric charge developed on the exterior surface of an insulated conductor.

Since other variations of dynamoelectric machines designed for high voltage applications such as Siemens and Shildneck utilize rounded cables for its windings in the stator core slots, why

would one skilled in the art not use the semiconducting layers and modify the existing cable? Or why would one skilled in the art not utilize a cable similar to the one disclosed by Elton et al.?

It is noted that Elton et al. ('165) in column 2, lines 48-52 also teach the number of semiconducting layers applied may vary depending on the design requirements.

Moreover, applicant's argument limiting the use of the electrical "cable" for electrical transmission and distribution only is not well understood. As defined by Webster's II New Riverside University dictionary, a cable is "a bound or sheathed group of mutually insulated conductors". The windings in the dynamoelectric machine, including those for high voltage applications, use these type of conductors for electrical transmission.

Examiner disagrees with applicant's argument that the cable of Elton et al. ('565) is stiff due to the presence of the semiconducting layer made of pyrolized glass layer. The rigidity of a conductor cable primarily depends on the type of insulation used. Shildneck for instance, in column 2, lines 28-30 teaches that the rigidity of the conductor bars depend on the type of insulation used. Shildneck uses silicone-rubber insualtion in his flexible cable. Moreover, as is known in power cables, cable flexibility primary depends upon the use of ethylene-propylene (EPM) and ethylene-propylene-diene (EPDM) rubbers as insulation rather than of the semi-conducting layer.

Elton et al. ('565) in column 8, lines 3-9, teach that the semi-conducting pyrolized glass layer can be chopped, mixed with resin and molded or blown on any complex shaped substrate so

that the layer can be placed in intimate contact with substantially all of the exterior surface of the insulator or housing. As such, the semi-conducting layer does not cause cable rigidity.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for response to this final action is set to expire THREE MONTHS from the date of this action. In the event a first response is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for response expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elvin Enad whose telephone number is (703) 308-7619. The examiner can normally be reached on Monday-Friday from 8:00AM to 4:00PM.

11. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez, can be reached on (703) 308-1371. The fax phone number for this Tech Center is (703) 305-3431(32).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

Elvin Enad
Primary Examiner
Art Unit 2834
04.05.2001